BD. -8°, 5996 (8.7 mag.). The time of dissappearance was $9^{h}\ 57^{m}\ 58^{s}.3$ P. S. T.

Beginning of totality,	$9^{h}\ 6^{m}\ 28^{s}$ P. S. T.
End of totality,	$10^{h}\ 47^{m}\ 35^{s}$
Last contact with shadow,	$11^{h}\ 54^{m}\ 00^{s}$

R. G. AITKEN.

LICK OBSERVATORY,
September 4, 1895.

LUNAR ECLIPSE, SEPTEMBER 3, 1895.

Beginning of totality, $9^{h}\ 6^{m}\ 35^{s}$ P. S. T.
End of totality, $10^{h}\ 47^{m}\ 20^{s}$.
Observations made without telescopic aid.

W. W. CAMPBELL.

NOTE ON THE MELTING OF THE POLAR CAPS OF *MARS*.

I suppose no fact concerning *Mars* has been better established than the one that the polar caps continue to decrease in size after the summer solstice on the planet has passed. The statement has recently been made, both in an astronomical journal and in the secular press, that the continued diminution of the cap after solstice proves that the maximum temperature on the planet occurs several months after summer solstice, and, therefore, that *Mars* has a "heat-storing atmosphere."

I believe that astronomers have always considered that *Mars* has *some* atmosphere, that the more or less extensive atmosphere is necessarily "heat-storing," and that the maximum temperature necessarily, therefore, occurs some time after summer solstice. But does the continued melting of the caps after solstice prove it? I think not.

Suppose that a given area A of a cap melts off before solstice, leaving a remnant of area B covering the polar region. The area B receives the same amount of direct solar heat before solstice that it does after. If this heat had no effect upon the area B until after summer solstice, then the point would be well taken. But such is not the case. There is abundant positive proof that extensive melting of the area B does occur before solstice; and that it should continue to melt after solstice does not prove that the maximum temperature occurs then, since the same amount of direct solar heat is received after solstice as before.

Melting within the area *B* before solstice is evident from the dark regions which have been observed to form within the cap. An examination of the drawings of the south polar cap at the 1894 opposition will show that large dark areas existed within the cap, in the immediate vicinity of the pole, months before solstice occurred. Thus, the solstice occurred September 1, 1894, with only a small cap of area *B* remaining. Even in May, 1894, three months before solstice, there was a large dark area in the immediate vicinity of the pole, almost as large as the entire remaining area *B* of September 1. If dark areas, presumably formed by melting, appear in the polar regions months before solstice, we would expect the melting to continue over the same area for at least an equal number of months subsequent to solstice; and the fact that it does so is no proof that the maximum heat occurs after solstice.

Again, because a small area *B* remains on September 1, must we assume that the snow or other material forming the cap *B* is then at its original depth? Possibly a half, or two-thirds, or nearly all of the original snow covering *B* has melted before September 1, so that only a thin layer remains to be melted after solstice.

It is well to remark again that astronomers have always believed that whatever atmosphere *Mars* has is necessarily heat-storing, and that the maximum temperature therefore occurs after the solstice; but the continued melting of the caps after solstice neither proves nor disproves it. W. W. C.

The Cœlostat.

M. Lippmann's recent paper before the French Academy, on the theory of an instrument called the "cœlostat," has created considerable interest abroad [see *The Observatory*, for August], on the supposition that the instrument is new. The principles — and possibly the practice — of the cœlostat are well known in this country. As an example, I may, perhaps, mention that when Professor S. P. Langley was here, in 1893, he recommended that for certain purposes we mount the reflector of our heliostat with its plane in the axis of rotation and parallel to the Earth's axis, adjust the clock-work to a 48-hour rotation, and place the observing telescope in the proper horizontal position. These conditions are identical with those required by M. Lippmann's cœlostat. W. W. C.